

What is claimed are:

1. An apparatus for controlling vehicle brake using brain waves, comprising:

a brain wave detector for detecting a central beta rhythm of a driver's brain waves appearing before the driver's movement to step on a brake pedal after the step of determining driving conditions;

a brain wave amplifier for amplifying the brain waves detected by the brain wave detector;

an A/D converter for converting the brain waves amplified by the brain wave amplifier into a digital data; and

a controller for sensing the driver's movement for braking by analyzing the brain waves converted into the digital data in the A/D converter and then generating a command for braking the vehicle.

2. The apparatus as claimed in claim 1, wherein the brain wave detector has a headphone-type shape in which an electrode is attached to a central region of the driver's scalp.

3. The apparatus as claimed in claim 2, wherein the electrode is one in number and is positioned in Cz, Pz or Fz of International 10-20 System of Electrode Placement.

4. A method for controlling vehicle brake using brain waves, comprising:

a detection step of detecting a central beta rhythm of a driver's brain waves appearing before the driver's movement to step on a brake pedal after determining driving conditions;

an amplification step of amplifying the central beta rhythm detected in the detection step;

an A/D conversion step of converting the amplified central beta rhythm into a digital data; and

a control step of sensing the driver's movement for braking by comparing the central beta rhythm that was converted into the digital data in the A/D conversion step with a reference brain wave and then generating a command for braking the vehicle.

5. The method as claimed in claim 4, wherein comparison in the control step includes determining that there exists movement for braking, if a relative power to the reference brain waves of the detected central beta rhythm is lower than a predetermined threshold, and then generating the vehicle braking command.

6. The method as claimed in claim 4, wherein the control step includes operating the vehicle brake, by determining whether or not there is movement for braking by using an artificial neural network with the relative power at each frequency of the detected central beta rhythm as an input.